

TANK REMOVAL SUMMARY FOR CFA-681

1.0 INTRODUCTION

The EG&G Idaho, Inc. (EG&G Idaho) Tank Management Program (TMP) is responsible for the removal of out-of-service Underground Storage Tanks (USTs) throughout the Department of Energy's Idaho National Engineering Laboratory (INEL) to meet requirements set forth in 40 CFR 280 Subparts F and G (40 CFR, 1990). The following is a removal summary for a UST designated as CFA-681, located at the INEL Central Facilities Area (CFA). The UST CFA-681 was removed on October 30, 1990.

Information obtained from current TMP inventory records, historical tank use records, and sampling and laboratory analytical results is being presented here to summarize activities to date for CFA-681.

2.0 TANK HISTORY AND PURPOSE

From the current TMP inventory database records, the tank content of CFA-681 was diesel fuel. Based on tank historical records, CFA-681 was a 500 gallon steel UST, which stored diesel fuel for heating purposes. This tank was installed in 1949 and remained in use until 1978. Figure 1 is a diagram of where CFA-681 was located.

A liquid sample of the remaining tank contents (2.5 in. in depth) was collected on May 22, 1989 for waste profile analysis. The sample logbook provides a description of the sample at the time of collection (Attachment A). The analytical work was performed by EG&G Idaho's Environmental Chemistry Unit. The analytical results are contained in the CFA-681 Tank file in the custody of the TMP. The Generator's Hazardous Waste Material Profile Sheets (EG&G Form 669) are completed for all USTs and are part of the record keeping system for the TMP. Form 669s are not required for petroleum tank contents; however, a Form 669 was completed and submitted to the EG&G Waste Handling

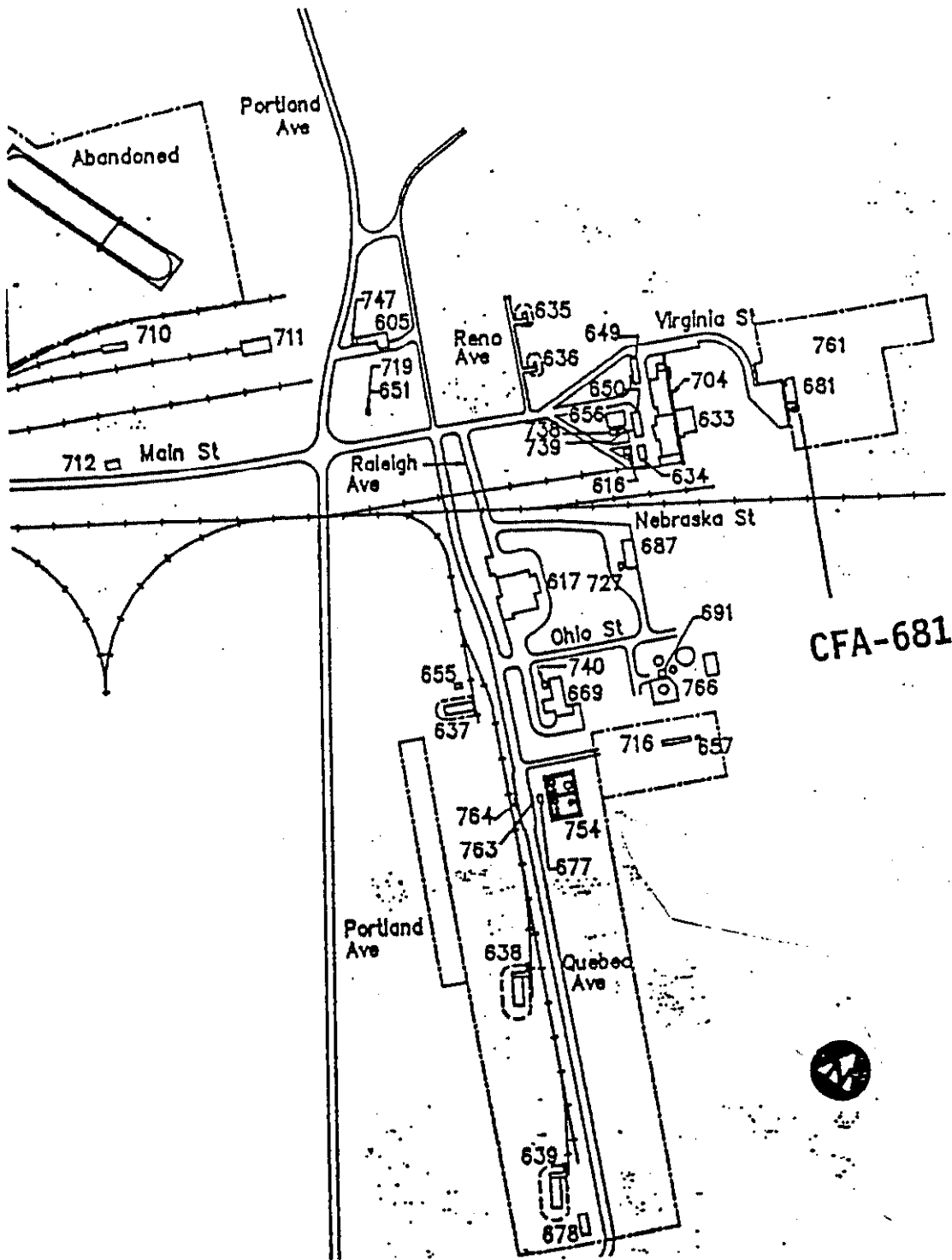


Figure 1. Location of CFA-681.

Operations (WHO) Unit for waste characterization (Attachment B). This data is only used as a means of transmitting information to the WHO Unit. Laboratory analysis of the diesel fuel indicated no hazardous constituents in the aqueous phase. However, the laboratory quantitation limit exceeded the regulatory action level for arsenic, lead, and selenium. Therefore, an independent assessment of the hazard was requested from the WHO. The Form 669 identifies the contents of CFA-681 as 72% fuel oil, 27% aqueous phase, and 2% emulsion phase. With WHO support, it was determined that the report of analysis did not identify concentrations of constituents that would prohibit recycling the remaining product as fuel to be burned for energy recovery (G. Andrews, 1990). However, there was insufficient product in CFA-681 to be removed by pumping.

3.0 TANK REMOVAL

Excavation and removal activities for CFA-681 began and were completed on October 30, 1990. For safety and field screening purposes, volatile organic compound (VOC) levels in the tank excavation and excavated soils were monitored by the EG&G Idaho Environmental Technology Unit staff using a Photovac Microtip Photoionization Detector (PID). Field screening involved visual observation of excavated materials for discoloration and the use of the PID to evaluate the presence of VOCs (EG&G Idaho, 1990). Field screening methods helped determine the location and frequency of samples collected for laboratory analysis.

Soil samples were screened with the Microtip PID as the soil was being removed. Samples for field screening were collected with a decontaminated stainless steel soil spoon and placed in a ziplock soil sampling bag before analysis with the precalibrated Microtip PID (EG&G Idaho, 1990). The portable Microtip PID was calibrated daily before sample collection (EG&G Idaho, 1990).

During the excavation, VOCs in the soil were detected by the Microtip PID. Some of the soil concentrations were above the field screening Microtip action level of 50 ppm for fuel oil tank-associated materials (EG&G Idaho, 1990). Soil above this field screening action level was considered contaminated and was separated from the clean soil and transported to the INEL

Central Facility Area (CFA) Landfill. During the excavation and removal of the tank, the equipment operator was directed by the Job Site Supervisor to place all material with known or suspected elevated VOCs in one location separated from the clean soil.

The field VOC readings for the soils collected underneath CFA-681 are presented in Table 1. All readings were below the field screening action level of 50 ppm. Following excavation, the pit was backfilled with the clean soil that was removed and with additional clean soil from the gravel pit at the INEL CFA area. Once the process of backfilling was completed, CFA-681 was moved to the tank storage yard at CFA at the direction of the Job Site Supervisor.

Table 1. Microtip VOC field screening results for samples collected in the CFA-681 excavation

Location Number*	Concentration (ppm)
0 (UC32001T1)	4.7
1 (UC32101T1)	7.4
2 (UC32201T1)	9.3
2 (UC32202T1) Duplicate	9.7
3 (UC32301T1)	26.8
4 (UC32401T1)	18.2

*Collocated with samples with the same number in Table 2.

4.0 SOIL SAMPLE SUMMARY

Five biased soil samples were collected from the tank excavation before backfilling. Soil sample locations were biasly selected to areas with the highest potential for contamination from tank product. The sample locations included areas directly below materials that were detectably contaminated and removed. Sample locations along the tank keel line and at points along the outer edge of the tank were also selected. Samples of excavation materials were collected for BTEX and TPH analysis to indicate residual contamination

levels prior to backfilling. Approximate soil sample locations are identified in the sample logbook (Attachment C). All soil samples submitted to Data Chem were taken at a uniform depth of 9 ft.

Soil samples were collected directly from the heavy equipment bucket. A decontaminated stainless steel soil spoon was used to completely fill a 250-mL glass I-CHEM jar. Soil samples collected underneath CFA-681 were sent to Data Chem Laboratories in Salt Lake City, Utah, a CLP laboratory, for analysis of benzene, toluene, ethylbenzene, and xylene (BTEX) using EPA Method SW-846-8020 (EPA, 1986). The samples were also analyzed for Total Petroleum Hydrocarbons (TPH) using the California Department of Health Services Method (California State Water Resources Board, 1988).

Quality control sampling for petroleum USTs was limited to one field replicate per tank closure. This decision was based upon the range of action levels used for contamination status. Rinsate and trip blanks would have little significance on petroleum contaminated samples that have action levels of 80 ppm for gasoline contamination and 800 ppm for diesel contamination (EG&G Idaho, 1990).

A summary of the analytical results (given in Attachment D) is shown in Table 2.

5.0 AREA ASSESSMENT

The assessment of the CFA-681 area after tank removal was based upon the presence and extent of contaminants in the soil associated with the tank. Contaminant concentrations in the soil were compared to action levels as per agreement with EPA Region X and the Idaho Department of Health and Welfare, Division of Environmental Quality (IDH&W-DEQ) (EG&G Idaho, 1990).

Laboratory analysis action levels are commonly set at 1000 ppm BTEX and TPH for materials associated with diesel tanks (State of California Leaking Underground Fuel Tank Task Force, 1988). The TMP has set a more conservative laboratory action level of 800 ppm TPH, which is 20% below the commonly

Table 2. Laboratory analytical results for soil samples collected from the CFA-681 excavation^a

Field Sample Number	Datachem Lab Number	Sample Type	Sample Description	Benzene ($\mu\text{g/g}$)	Ethyl Benzene ($\mu\text{g/g}$)	Toluene ($\mu\text{g/g}$)	Xylene ($\mu\text{g/g}$)	Total Petroleum Hydrocarbons ($\mu\text{g/g}$)
UC32001T1	EJ 6037	SOIL	excavation	ND*	ND*	ND*	ND*	10
UC32101T1	EJ 6038	SOIL	excavation	ND*	ND*	ND*	ND*	180
UC32201T1	EJ 6039	SOIL	excavation	ND*	ND*	ND*	ND*	20
UC32202T1	EJ 6040	SOIL	duplicate	ND*	ND*	ND*	ND*	ND*
UC32301T1	EJ 6041	SOIL	excavation	ND*	ND*	ND*	ND*	160
UC32401T1	EJ 6042	SOIL	excavation	ND*	ND*	ND*	ND*	150
Limit of Detection				0.05	0.05	0.05	0.1	10
Action Levels (ppm)				NA	NA	NA	NA	800

a. The data presented above have not yet been validated, but validation review will be performed at a later date. NA-not applicable

ND Parameter not detected

accepted laboratory analysis action level, for materials associated with fuel oil or diesel tanks (EG&G Idaho, 1990). Soils containing residual contaminant concentrations that exceed the TMP imposed laboratory analysis action level will be subject to negotiation with EPA Region X and the IDH&W-DEQ.

During removal activities, the excavation materials appeared to be below the set field screening action level of 50 ppm as evidenced by the VOC readings on the PID. Laboratory analytical results confirmed the non-contaminated status. The pit was backfilled on the same day as the tank removal, as directed by the Job Site Supervisor.

Based on review of the CLP analytical data, the CFA-681 site is currently considered by the TMP to have contamination levels below the set TMP action levels for TPH. However the CLP analytical data have not been validated at this time, and a data validation review will be performed by the Sample Management Office at a later date. The closure of the tank may change if the data prove invalid.